

Claims

- [c1] A control system for an automotive vehicle having a brake system comprising:
an object detection system generating an object detection signal and an object distance signal; and
a controller coupled to the object detection system, said controller programmed to generate a brake-steer signal proportional to object distance signal in response to the object detection signal and the object distance signal in response to the brake steer signal.
- [c2] A control system as recited in claim 1 wherein said controller determines a direction change in response to the object signal.
- [c3] A control system as recited in claim 2 wherein said controller controls a first brake to control the vehicle toward the direction change.
- [c4] A control system as recited in claim 1 wherein the object detection system comprises a radar.
- [c5] A control system as recited in claim 1 wherein the object detection system comprises a sonar.

- [c6] A control system as recited in claim 1 wherein the object detection system comprises a lidar.
- [c7] A control system as recited in claim 1 wherein the object detection system comprises a camera.
- [c8] A control system for an automotive vehicle having a brake system comprising:
an object detection system generating an object detection signal and an object distance signal; and
a controller coupled to the object detection system, said controller programmed to generate a brake control signal proportional to object distance signal in response to the object detection signal and the object distance signal, and control the brake system in response to the brake control signal.
- [c9] A control system as recited in claim 8 wherein the brake control signal comprises a first brake control signal, a second brake control signal, a third brake control signal and a fourth brake control signal.
- [c10] A control system as recited in claim 8 wherein said controller determines a direction change in response to the object signal.
- [c11] A control system as recited in claim 10 wherein said controller controls a first brake to control the vehicle to-

ward the direction change.

- [c12] A control system as recited in claim 8 wherein the object detection system comprises a radar.
- [c13] A control system as recited in claim 8 wherein the object detection system comprises a sonar.
- [c14] A control system as recited in claim 8 wherein the object detection system comprises a lidar.
- [c15] A control system as recited in claim 8 wherein the object detection system comprises a camera.
- [c16] A control system as recited in claim 8 wherein said controller is programmed to control the brake system by applying brake-steer.
- [c17] A system as recited in claim 16 wherein said controller is programmed to brake-steer by applying a first brake and a second brake to reduce the turning radius of the vehicle.
- [c18] A system as recited in claim 16 wherein said controller is programmed to brake-steer by applying at least one brake at a first wheel to reduce a vehicle turning radius.
- [c19] A system as recited in claim 16 wherein said controller is programmed to brake-steer by applying an increased

drive torque to a second wheel relative to the first wheel.

- [c20] A method of controlling an automotive vehicle having a brake system comprising:
 - generating an object detection signal and an object distance signal in response to an object;
 - generating a brake-steer signal proportional to object distance signal in response to the object detection signal and the object distance signal; and
 - applying brake-steer to the vehicle in response to the brake-steer signal to attempt to avoid the object.
- [c21] A method as recited in claim 20 wherein generating an object detection signal comprises generating an object signal in response to a sonar, radar or lidar.
- [c22] A method as recited in claim 20 wherein generating an object detection signal comprises generating an object signal from a camera.
- [c23] A method as recited in claim 20 wherein applying brake-steer comprises applying at least one brake at a first wheel to reduce a vehicle turning radius.
- [c24] A method as recited in claim 20 wherein applying brake-steer comprises applying an increased drive torque to a second wheel relative to a first wheel.

- [c25] A method as recited in claim 20 applying brake-steer comprises increasing the normal load on a rear wheel.
- [c26] A method as recited in claim 20 applying brake-steer comprises increasing the normal load on a front wheel.
- [c27] A method of controlling an automotive vehicle having a brake system having a plurality of brakes comprising:
generating an object position signal and an object distance signal;
generating a brake control signal proportional to object distance signal in response to the object position signal and the object distance signal;
generating a supplemental brake signal in response to the object position signal for at least one of the plurality of brakes to generate brake-steer for the vehicle; and
controlling the brake system in response to the brake control signal and the supplemental brake signal.
- [c28] A method as recited in claim 27 wherein generating an object position signal comprises generating an object signal in response to a sonar, radar or lidar.
- [c29] A method as recited in claim 27 wherein generating an object position signal comprises generating an object signal in response to a camera.
- [c30] A method as recited in claim 27 wherein generating a

supplemental brake signal comprises generating a supplemental brake signal in response to a yaw rate.